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Exploring the sexual and reproductive health knowledge, practices and needs of adolescents living with perinatally acquired HIV in Côte d'Ivoire: a qualitative study

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Abstract

Introduction Adolescents face unique challenges in accessing appropriate information and services regarding sexuality and reproductive health (SRH). This poor access can lead to sexual behaviours that could put them at risk of unintended pregnancies and sexually transmitted infections. Adolescents living with HIV (ALHIV) have specific SRH needs that remain unmet. We explored the SRH knowledge, practices and needs of ALHIV in Abidjan, Côte d'Ivoire.

Methods Between April and September 2023, a qualitative study using semi-structured individual interviews was conducted with nine male and nine female ALHIV without previous pregnancies, and eight ALHIV who became pregnant. All consented and were ALHIV acquired perinatally, aged 15–19 years, informed of their HIV status, and followed in three paediatric HIV care centres in Abidjan. participating in the paediatric IeDEA West African Cohort and enrolled in the ANRS12390 OPTIMISE-AO project aimed at improving HIV disclosure process and adherence to antiretroviral treatment. A focus group discussion was conducted with five peer-educators, aged 23–31 years, participating in the OPTIMISE-AO project to gather their perspectives on adolescent SRH. Interviews were conducted in French, and a thematic analysis was performed.

Results All participants expressed difficulty in talking about SRH with their parents or health professionals and turned to their friends for advice. All feared transmitting HIV. One-third of female participants reported having experienced non-consensual sex and sexual violence. Participants reported low levels of condom use, despite having good knowledge of its purpose. Reasons for not using condoms included difficulties in negotiating for girls, as well as having an undetectable viral load, which was seen by adolescents as a condition for waiving condom use. As hormonal contraceptives were subject to many negative beliefs justifying their non-use, alternative methods, such as emergency contraceptive pills or traditional plants, were used to prevent pregnancy.

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Conclusion ALHIV reported unmet SRH needs, particularly in terms of accessing reliable information and appropriate support. Integrating SRH care into paediatric HIV care, organising SRH discussion groups led by peer-educators, and improving access to a range of contraceptives may address these needs to enhance SRH outcomes for ALHIV.

Summary

Adolescents lack access to appropriate information and services on sexuality and reproductive health (SRH), which could lead to unintended pregnancies and the spread of sexually transmitted infections. In this study, we aimed to explore the SRH knowledge, practices and needs of adolescents living with HIV (ALHIV) living in Abidjan, Côte d'Ivoire. Between April and September 2023, we conducted qualitative interviews with adolescents (9 males, 9 females, and 8 females who experienced pregnancy) aged 15–19 years. All were born with HIV and were informed of their HIV status. A group discussion was also conducted with five peer-educators, aged 23–31 years, to gather their perspectives. All participants expressed difficulty talking about SRH with their parents and health professionals and turned to their friends. A third of girls reported having experienced sexual violence. Despite having good knowledge of how and why to use a condom, most participants reported poor condom use. The main reasons were difficulties negotiating with their partner for girls, and having an undetectable viral load (being undetectable means that the virus is at such low concentrations in the blood that it cannot be transmitted). Many negative beliefs around hormonal contraception were reported. Alternative methods, such as emergency contraceptive pills, or traditional plants were used instead to prevent pregnancy. To summarize, ALHIV reported difficulties in accessing reliable information and appropriate support on SRH. Better integration of SRH care into paediatric HIV care, and better access to contraceptives, with the support of peer-educators, are urgently needed for ALHIV.

Keywords Sexual and Reproductive Health (SRH), Adolescent, HIV, Côte d'Ivoire, Qualitative research

Résumé en français

Introduction Les adolescents sont confrontés à des défis majeurs pour accéder à des informations et des services de sexualité et de santé reproductive (SSR) appropriés. Ce manque d'accès peut conduire à des comportements sexuels qui les exposent à des grossesses non désirées et à des infections sexuellement transmissibles. Les adolescents vivant avec le VIH (AVVIH), ont des besoins spécifiques en SSR qui restent non satisfaits. Nous avons exploré les connaissances, pratiques et besoins en matière de SSR des AVVIH à Abidjan, en Côte d'Ivoire.

Méthodes Entre avril et septembre 2023, une étude qualitative basée sur des entretiens individuels semi-structurés a été menée auprès d'adolescents âgés de 15 à 19 ans vivant avec le VIH acquis en période périnatale et informés de leur statut sérologique. Ils étaient issus de trois centres de prise en charge pédiatrique du VIH à Abidjan, participant à la cohorte pédiatrique IeDEA Afrique de l'Ouest et inclus dans le projet ANRS12390 OPTIMISE-AO qui vise à améliorer le processus d'annonce et l'observance au traitement antirétroviral. Neuf garçons et neuf filles sans antécédents de grossesse ainsi que huit filles ayant eu une grossesse ont participé à l'étude. Une discussion de groupe a été menée avec cinq pair-éducateurs, âgés de 23 à 31 ans, qui ont participé au projet OPTIMISE-AO, afin de recueillir leurs points de vue sur la SSR des adolescents. Les entretiens ont été menés en français et une analyse thématique a été réalisée.

Résultats Tous les participants ont exprimé des difficultés à parler de SSR avec leurs parents ou des professionnels de la santé et se sont tournés vers leurs amis pour obtenir des conseils. La peur de transmettre le VIH était une préoccupation commune. Un tiers des filles ont déclaré avoir subi des rapports sexuels non consentis et des violences sexuelles. Les participants ont indiqué peu utiliser le préservatif, même s'ils en connaissaient bien l'utilité. Les raisons de non-utilisation comprenaient des difficultés de négociation pour les filles, ainsi qu'une charge virale indétectable, perçue par les adolescents, comme une condition pour renoncer au préservatif. Les contraceptifs hormonaux faisaient l'objet de nombreuses croyances négatives justifiant leur non-utilisation, et des méthodes alternatives, telles que la pilule contraceptive d'urgence, ou des plantes traditionnelles, étaient utilisées pour prévenir les grossesses.

Conclusion Les AVVIH ont fait état de besoins non satisfaits en matière de SSR, notamment en ce qui concerne l'accès à des informations fiables et à un soutien approprié. L'intégration des soins de SSR dans les soins pédiatriques du VIH, l'organisation de groupes de discussion sur la SSR dirigés par des pair-éducateurs et l'amélioration de l'accès aux contraceptifs peuvent répondre à ces besoins et améliorer la SSR des AVVIH.

Introduction

Adolescence is the time at which individuals initiate their sexual life, and limited sexuality and reproductive health (SRH)-related knowledge and limited use of preventive measures such as condoms can increase the risk of unintended pregnancy, contracting sexually transmitted infections (STIs), and transmitting HIV to partners or infants during pregnancy [1–3]. In sub-Saharan Africa (SSA), access to SRH services, methods for preventing HIV and other STIs and unintended pregnancies, knowledge about SRH, and support from peers and health professionals are pressing public health issues for all adolescents [4, 5]. Contributing factors such as stigmatisation, gender inequality, discrimination, and violence hinder access to SRH services [4, 5].

In 2023, an estimated 1.55 million adolescents aged 10–19 years were living with HIV worldwide, 85% of whom were living in SSA [6]. This population of adolescents living with HIV (ALHIV) is considered a key population in the global response to HIV [7]. They face major challenges related to HIV care, such as HIV disclosure and adherence to antiretroviral treatment or virological response [8]. They also face specific challenges related to their SRH [9, 10]. Research has shown that ALHIV have little access to SRH services and make little use of them, particularly because of a lack of integration of SRH services into HIV care [11]. A systematic review on ALHIV in SSA revealed high rates of risky sexual behaviours, including inconsistent condom use, multiple partners, and transactional sex [12]. Evidence also suggests that condom use remains rare among ALHIV, similar to their non-HIV-infected peers, with one in four adolescents in SSA reporting using a condom during their last sexual intercourse [12].

In Côte d'Ivoire, few studies have analysed SRH access and needs of adolescents and young adults [13, 14] and even fewer studies have focused on ALHIV [15, 16]. In Abidjan, the incidence of pregnancy among ALHIV aged 15–19 years was estimated at 3.6/100 PY (person-year) between 2009 and 2013 (95% CI: 2.2–5.9) [16]. In 2019, in three paediatric HIV care centres, a cross-sectional study revealed that the integration of SRH care into HIV care remains limited, with negative perceptions of healthcare professionals regarding SRH care for ALHIV [15]. Indeed, healthcare professionals play a crucial role in providing care, and their opinions can significantly influence the quality of care, particularly in regard to sensitive topics such as the sexuality of ALHIV [17, 18]. However, data on adolescents' knowledge and perspectives related to sexuality, factors that influence their sexual practices and risky sexual behaviours in the context of HIV are lacking. There is a critical need to better understand their SRH needs to improve their access to SRH care. Using a qualitative approach, we explored the SRH knowledge, practices and needs of ALHIV in Abidjan, Côte d'Ivoire.

Methods

Study context

This study was part of the OPTIMISE-AO ANRS 12390 project, which is a stepped-wedge interventional trial implemented in Côte d'Ivoire, Burkina Faso and Togo since February 2021. It assesses the acceptability and effectiveness of a package of interventions aimed at improving the quality and frequency of complete HIV status disclosure to ALHIV (before age 12) and antiretroviral adherence based on viral load measurements. All adolescents living with perinatally acquired HIV, aged 10–17 years, followed in one of the five national referral paediatric HIV care centres participating in the International Epidemiology Databases to Evaluate AIDS (IeDEA) (https://www.iedea.org/) West Africa paediatric cohort [15, 16, 19–21] were included with their assent and parental written consent. The project offered weekly group discussions with ALHIV, co-led by peers-educators and healthcare professionals, to discuss a variety of health-related topics, and especially to prepare ALHIV and their families for the disclosure of HIV status to adolescents. The peer-educators were young adults living with HIV who were trained and volunteer to support the interventions in the OPTIMISE-AO project. The current study was conducted in the three paediatric HIV care centres in Abidjan, Côte d'Ivoire.

Study design and participants

Between April and September 2023, an exploratory, qualitative study involving individual semi-structured in-depth interviews with ALHIV and a focus group discussion with peer-educators was conducted. Adolescents aged 15–19 years who were aware of their HIV status and included in the OPTIMISE-AO project in Côte d'Ivoire were eligible to participate in the present study. Adolescents were recruited using a purposive sampling technique, respecting gender parity: three females and three males were selected in each centre with the assistance of health professionals (paediatricians and psychologists) to identify ALHIV who were willing to talk about their own sexuality. In addition, female ALHIV who became pregnant after their inclusion in the OPTIMISE-AO project were also recruited as a separate group. Prior to the interview phase, comprehensive information about the study was presented to the eligible adolescents of each participating centre by the healthcare professionals and the two interviewers. These meetings allowed us to build a relationship of trust between the adolescents and the interviewers. Adolescents were invited to ask questions and then to give their oral consent to participate in this

sub-study. All the peer-educators involved in OPTIMISE-AO in Côte d'Ivoire (n = 8) were invited to participate to a Focus Group Discussion (FGD).

Data collection

An individual semi-structured interview guide was developed with our research team composed of experts in adolescent global health, HIV, and SRH research. Healthcare professionals from each participating centre and local sociologists were consulted to adapt the level of language to suit the adolescents and incorporate local Ivorian expressions. The interview guide was pretested with one adolescent male and an adolescent female to check the participants' level of understanding and the relevance of the questions. Questions were adapted for each subgroup of adolescents (male, female and those who became pregnant). Five main topics were explored during the interviews: (1) their sexual life: first sexual experiences (including receptive or insertive intercourse) and impact on their sexuality on their life; (2) support or information from about SRH; (3) knowledge and use of SRH prevention methods; (4) SRH services provided by paediatric centres; and (5) pregnancy and the desire to have children. The last topic was specifically discussed with adolescents who became pregnant and will be the subject of a separate article (to be published) (Annex 1 and Annex 2). The FGD guide was adapted from the interview guide after the interviews were conducted to obtain the perceptions of the peer-educators on the topics explored with the adolescents (Annex 3).

The semi-structured individual interviews and the FGD were conducted by two trained qualitative researchers, both of whom were present at each session: JD, a PhD student in Sociology from Côte d'Ivoire, as the main interviewer, and CT, an MSc in Public Health from France, as the co-interviewer. Interviews were conducted until data saturation was reached. A digital audio recorder was used to record individual and group interviews, and notes were taken by the observer. All interviews started with "ice-breaker" activities to help build confidence and trust between the adolescent and the interviewers. The individual interviews lasted between 45 and 75 min, and the FGD lasted 4 h. All participants received food and refreshments, as well as financial compensation for transportation.

Data analysis

We analysed the data using a thematic analysis method, which enabled us to identify the key themes emerging from the interviews and to highlight the experiences and opinions of the respondents. The interviews and the FGD were carried out, transcribed and analysed in French. Transcriptions were carried out by local transcription professionals in Abidjan and then checked by the interviewers.

The analytical process was led by CT, with the support of JD and JJ, and included the following steps: (1) reading of interview transcripts; (2) deductive (based on the themes of the interview guide) and inductive (themes emerging from the data) coding of the transcripts (using the NVivo software); (3) identification of the main themes and subthemes; (4) summary of each theme; and (5) interpretation of findings using the themes summaries, which were triangulated with informal discussions and knowledge of the SRH of ALHIV in Abidjan and the literature. Final codes were discussed and approved with JD and JJ (Annex 4).

The relevant direct quotes from the transcripts are displayed for each topic, indicating from which interview or FGD they originated, and specifying when the female participant get pregnant. The illustrative quotes shown in this article for each topic are English translations that we ensured stay as close as possible to the original meaning from the adolescents. We adhered to the Consolidated Criteria for Reporting Qualitative Research guidelines [22].

Reflexivity and positionality

The research team is composed of academic researchers based in France, with long-term expertise in the African public health context, and of healthcare professionals from the partnered HIV clinics, as well as public health experts in Côte d'Ivoire. All had previous experience of being part of a qualitative study. At the outset of the study, the research team was aware of the cultural and ethnic differences between the French interviewer and the adolescents, which could have been challenging. CT is a French cisgender male who was in his twenties and had not previously conducted research in an Africa context. In collaboration with the local healthcare professionals and the main interviewer, he worked on his interviewer's posture to adapt to local cultures and expressions. He used a number of interviewing tools and techniques, including ice-breaker activities at the beginning of the interview, to get to know each other and overcome cultural and ethnic barriers with the respondents.

Ethical considerations

The OPTIMISE-AO protocol was approved by the National Research Ethics Review Board of each participating country, including Côte d'Ivoire (ref number: 112–19/MSHP/CNESV-kp). All adolescents included in the OPTIMISE-AO project provided written informed assent and their parents provided their written consent. Necessary measures to ensure confidentiality and address the possibility of distressed respondents were taken. All

interviews were conducted in an isolated room and interviewers offered to pause at any time if the participant felt uncomfortable.

Results

Overall, we conducted twenty-six individual interviews (nine male ALHIV, nine female ALHIV without a history of pregnancy, and eight ALHIV with a history of pregnancy) and one focus group discussion with five peer-educators. Among the 26 adolescents interviewed, 21 (81%) had already had at least one sexual experience, i.e. sexual intercourse including a penetration, all of whom were in heterosexual relationships. The majority were in a relationship with their sexual partner at the time of the interview, and half reported multiple partnerships. The age at first sex was generally between 15 and 16 years, with no difference by gender. The eight ALHIV with a history of pregnancy had given birth by the time of the interview (all live births). The FGD was conducted with two young women and three young men, who all acquired HIV perinatally age ranged from 23 to 31 years.

The sexual life of ALHIV: first experiences and challenges related to their HIV status

The first sexual experiences for ALHIV were accompanied by a number of fears, including transmitting HIV. As one 16-year-old male noted, he was afraid, saying, "I don't want to [have sex], I think if I do that, I could infect her with the disease".

Other fears were reported, such as fear of being judged by others and fear of being forced to disclose their HIV status. Particularly among adolescent females, the main reason for not starting sexual activity was the desire not to become pregnant.

Another barrier to sexual debut was pressure and beliefs from family members to prevent adolescents from becoming sexually active. A 16-year-old female thought that she would stop growing if she had sex. This idea was transmitted by her older sister, "It's not too good because when you do that, you become withered, you don't grow any more, you just wither away. You're not like you used to be.". A 17-year-old male was told by his brother that it was not normal for his age to have sex, "Do you feel like it? Often, but it's not normal […] for my age, I should not do […], my brother told me so."

Disclosing HIV status was considered a difficult decision, as no adolescent had shared his or her status with their sexual partner(s). They all explained that discussing their HIV status at this point in their relationships would be difficult. As one 17-year-old male shared, "Because we started a long time ago [to have sex together], if I tell her now, it's going to feel weird, […], like it's going to change our relationship a bit".

Fear of breaking up with their partner and the possibility of their HIV status being involuntarily shared with others were the main reasons for not communicating it. This reluctance to disclose their status to a partner was also found among adolescents who had experienced pregnancy.

One-third of the female adolescents interviewed described experiences of sexual violence perpetuated by a current or ex-boyfriend or a family member. The term "sexual violence" here refers to forced sex and rape. Sexual violence in couples was reported as a widespread, common event that does not lead to separation. Two female adolescents said that their first sexual experience was nonconsensual:

> *Well, the first time, I would not say it was rape but it was... […] Well, I told him to wait, that I was not ready, and he said OK. So, I went there from time to time, one day I left, he threw himself on me like that and then he started doing it. (female, 17 years old)*

Talking about sexuality: a taboo subject

Although most adolescents were already sexually active, it appeared that access to information on sexuality remains difficult for them. Participants reported great difficulties discussing sexuality with their parents or their caregivers. They often find that parents are not comfortable discussing sexuality with them, as reported by this 17-year-old female: "My mum does not truly like talking […], when I talk to her about it, she behaves herself into it in a way, she acts disinterested".

Discussions between the adolescent and their parents focused on the importance of not disclosing one's HIV status and the need to take medicines. As a result, adolescents' sexuality had no place in parent–child discussions. Among the few parents who address this subject, it was mainly to give recommendations to be cautious about having sex. Several adolescents said they had received contraception from their parents or other family members, especially condoms.

> *Often the old man [dad] gives me condoms without me telling him about it, he tells me to go and look in his bag, there are 3 condoms, take 2 and leave one for him. (male, 17 years old)*

Overall, the adolescents said that they preferred to share their experiences and difficulties about sex with their friends rather than with their parents. They considered them an important source of information and valued discussions with them about having sex, like this 16-year-old female: "With my friends […] everyone talks about the guys they have done things with".

This idea was confirmed by peer-educators, "When you see two youth, two girls talking […] They are talking about sexuality.".

However, most ALHIV reported that they were discreet and listened rather than sharing their experiences with their friends, as mentioned by this 16-year-old male: "I like listening to them talk, then I do not have much to say".

According to peer-educators, young people are fairly discreet about their sex lives among their peers, but they need advice. Peer-educators offer them an attentive and discreet ear, as this 23-year-old peer-educator explains: "Generally, they don't expose their sex life in front of everyone; if they want to talk, they come to private. They talk about their girlfriend, their boyfriend. How can I deal with them? Do I take photos of myself and send them to her (naked photos)?".

Knowledge/conviction and use of STIs and contraceptive prevention methods

All the participants mentioned at least two methods of contraception during the interview, mainly the male condom and the emergency contraceptive pill. A few others mentioned the use of contraceptive implants and female condoms.

The condom

The majority of sexually active ALHIV reported having used a male condom at least once during sexual intercourse to avoid the transmission of HIV and to prevent pregnancy.

> *I did not want to contaminate her; HIV is only for me (male, 16 years old).*
> *The boy did not want me to get pregnant (female, 18 years old).*

Despite having adequate knowledge of the effectiveness of male condom use, most of these adolescents (17/21 sexually active) reported not using it very irregularly. To justify their choice of not using condoms, the participants expressed several ideas including having an undetectable viral load and difficulties negotiating for girls.

First, of the 26 teenagers, 23 had an undetectable viral load (number of copies less than 20/mL), indicating that the virus could not be transmitted during sexual intercourse, even without a condom. A 16-year-old male explained: "They told me that when I take the medicine, it is very difficult to infect […] without (condoms) it's ok".

Another reason why adolescents do not use condoms is the perceived reduction of pleasure.

Adolescent females also experienced difficulties negotiating condom use with their sexual partners:

> *The boys here don't like to eat bananas with the peel on, they don't like to do it with the peel on, if you can put it that way (female who became pregnant, 18 years old).*

Female adolescents also explained that they do not need a condom because they take a contraceptive, which in most cases is the emergency contraceptive pill, also known as "Pregnon". As one 19-year-old female explained, "I'm undetectable, so I cannot transmit, and then I take pregnon".

Hormonal contraception

The overall knowledge and perceptions of how other contraceptive methods work are poorly understood among adolescents. Adolescent girls expressed many unfounded beliefs and misconceptions about contraceptive pills and implants, which were relayed by people around them such as their friends, parents, village elders, and even healthcare professionals. The main concern for female participants was whether they would be able to have children after using hormonal contraception, such as contraceptive injectables.

> *I hear that it can cause problems afterwards, you will not be able to have children as you take the injections (female who became pregnant, 17 years old).*
> *When I went to buy, I asked a pharmacist […] she told me that you should not take the pill, when you're used to taking it, once you reach a certain level, you will not be able to get pregnant (female, 19 years old).*
> *That's it, I say that I hear that the girl there, she placed the iron [intrauterine device] […] she placed it and then, it is lost in her body; until now, they have not seen it […] I do not want to do that (female who became pregnant, 17 years old).*

In response to these beliefs, adolescents preferred to use emergency contraception rather than traditional contraceptive pills to minimise the dose of contraceptives in their bodies. A 17-year-old female explained, "Well, the pill destroys spermatozoa […] And since I do not do it every day, it is when I am going to do it that I take it, it is when I have finished that I take it [the emergency pill]".

Non-conventional contraceptive methods

Approximately half of the girls interviewed reported using home-made, non-conventional contraceptive methods after sexual intercourse, especially girls who became pregnant. These methods included "Nescafé—Coca", a mix of coffee and Coke made by the adolescent, and "Vody's—Paracetamol", mixing an energy drink and

a painkiller used as an emergency contraceptive. The use of a traditional plant called "Djéka" (scientific name *Alchornea cordifolia*), commonly used to cure urinary tract infections and to restore vaginal flora has also been reported by participants to prevent pregnancy.

The caregiver-adolescent relationship in SRH care

Since childhood, ALHIV have been cared for by paediatric HIV care professionals. Many participants lost their parents, especially their mothers, due to HIV. They viewed healthcare professionals as family members and called them Auntie, Uncle, or Mum. Because of this emotional dimension, most of the adolescents interviewed expressed reluctance and a feeling of shame about discussing sexuality with healthcare professionals. A 18-year-old female explained: "Mum XXX has been taking care of us like that since we were little and now, we cannot talk to her about it, we will feel a bit embarrassed, you see no".

Moreover, adolescents expressed their dislike of certain behaviours and attitudes of some of the healthcare professionals. Adolescents claimed to have received repeated warnings or mockery from healthcare professionals who encouraged them not to become involved in sexual relationships. A 19-year-old female expressed her frustration with the infantilizing messages she received: "They bore me with that, the little baby, you mustn't do that". Another 17-year-old female reported that healthcare professionals to not take their response seriously: "When she told me they had sex with you, I said yes. She laughed".

Despite having emotional barriers and limited conversations with professionals on the subject of SRH, participants expressed the need to talk with them about SRH. Indeed, there was a desire to obtain information directly from a reliable, impartial and neutral source.

> *Because our aunties [healthcare providers] have lots of advice to give us, […]; between us, we give each other the wrong advice. So, I prefer the aunties to my friends (female, 16 years old).*

The solution suggested by adolescents is that healthcare professionals should initiate the conversations. In this way, adolescents feel more secure and are able to communicate more freely with healthcare professionals on this subject and be more open to discussion. An 18-year-old female stated: "Yes, yes, I'm going to talk, but only if they talk more, if they ask questions like you [referring to the interviewer]".

Peer-educators were suggested to be the adolescents' main contacts on this subject because, as they said, adolescents cannot benefit from SRH services by talking only to health professionals:

> *The people who give out the condoms are adults. They do not feel comfortable. Imagine you're fifteen, you're fourteen, you go to the hospital, and then your doctor tells you that you have to take your medicine, and he gives you a condom […] or even, often you will say, 'Auntie, I'm not taking it because I do not do it. When in reality, you need this. (female, peer-educator)*

Discussion

Our qualitative study highlighted important critical gaps and barriers regarding access to adequate information, knowledge and support related to SRH among ALHIV in Abidjan, Côte d'Ivoire. Adolescents reported turning to their friends for information about sexuality rather than their families and health professionals due to social pressure and fear of judgments. Most adolescents were sexually active, but none disclosed their HIV status to their partners. Adolescents' knowledge of SRH was limited, with risky sexual practices reported, due to low male condom use, high negative beliefs about modern contraception and use of non-conventional contraceptives.

First, access to relevant information in a safe environment for discussion on the topic of SRH is challenging for adolescents in Côte d'Ivoire, where discussions about sexuality remain taboo [15]. Talking about SRH with parents and healthcare professionals seems even more difficult when adolescents live with HIV [18, 23]. Similar results were found in quantitative studies carried out in Nigeria, where more than 80% of male adolescents had never discussed sex-related issues with their parents [23]. This is the result of prevalent social norms in West Africa, particularly in Côte d'Ivoire, where sexuality is described as something that cannot be learned but rather discovered and where talking about it is blasphemy [24]. Adolescents reported that they preferred to talk to their friends or peers. This finding is consistent with the literature, which reports that the majority of adolescents in sub-Saharan Africa discuss sexuality with someone other than their parents [2, 25].

Furthermore, ALHIV reported keeping a low profile when discussing sexuality with their friends. This could be explained by the fact that ALHIV had not shared their HIV status with their friends and did not want the subject of HIV to come up in discussions. Indeed, the risk of hearing stigmatising, hurtful comments on HIV, or even that their HIV status was incidentally discovered, is a major fear for ALHIV. To our knowledge, this silent behaviour has not been highlighted in the current literature but may be related to their perceived internalised stigma [26]. In our study, none of the adolescents were willing to share their HIV status with their partner,

mainly for fear of breaking up with their partner or for fear of non-confidentiality on the partner's part. These reasons are similar to those found in other contexts, such as in qualitative studies among ALHIV conducted in Thailand [27], Kenya [28], and Zambia [29].

Most of the ALHIV interviewed were also reluctant to discuss SRH with healthcare professionals. One of the main reasons given was the shame of talking about this subject with an adult, which has been reported in Kenya [2], South Africa [18, 30], and Nigeria [31]. In our study context, there was a close emotional bond between adolescents and their healthcare professionals, and they even felt they were like family members. In a previous study exploring healthcare professionals' perceptions of HIV care for adolescents in Côte d'Ivoire [15], the majority reported that they often felt poorly prepared to communicate about sexuality with ALHIV. This lack of skills is compounded by strong personal convictions about the inappropriate nature of sexual relationships among adolescents and reluctance to develop SRH support for ALHIV [15]. This absence of communication with healthcare professionals is problematic and impacts the level of knowledge of SRH among ALHIV. A study on SRH care for ALHIV in Kenya [2] showed that when adolescents have built a relationship of trust and confidentiality, they feel comfortable talking to healthcare professionals about their sexuality. In our study, adolescents expressed a wish to learn from healthcare professionals, who are seen as trustworthy people who can provide them with reliable information. Training health professionals and community counsellors in SRH could ensure that this knowledge is effectively passed on to adolescents, in a safe and trusting environment.

Low levels of knowledge and lack of support to discuss and access SRH information and preventive methods were accompanied by reported unsafe sexual practices, putting ALHIV at risk of unintended pregnancies and STI transmission. Indeed, participants reported inconsistent condom use, with reasons for not using a condom varying by gender. Male respondents tend not to use condoms because of a lack of sensation and comfort, while female respondents cite their partner's refusal to use condoms as the main reason for not using them. These low levels of condom use among adolescents living in sub-Saharan Africa are commonly found in quantitative studies, whether among adolescents living with HIV or not [8]. This can be explained by a combination of factors, including educational, environmental and structural determinants [15]. Adolescent females reported having to negotiate condom use with their male sexual partner, a situation that has been documented extensively in different settings, such as in South Africa in qualitative and quantitative studies among adolescents [32, 33]. This situation stems from the gender inequalities particularly prevalent in Côte d'Ivoire [34], as this patriarchal society places men in a position of superiority and power, which is reflected in sexual decisions, sex education and lack of use of male condoms [35]. In Côte d'Ivoire, it is said that a "good girl" must abstain from sexual relations before marriage, and any initiative in matters of sexuality must come from men [24]. To challenge beliefs that have been held for generations, these misconceptions could be addressed at school, particularly through comprehensive sex education programmes.

Additionally, one specific reason for not using a condom reported in our study was the feeling of being unable to transmit HIV when adolescents had an undetectable viral load. Indeed, participants were well aware of the concept "Undetectable equals Untransmittable" (U=U) [36], meaning that individuals with HIV who have achieved and maintained an undetectable viral load cannot sexually transmit the virus to others. Therefore, ALHIV with undetectable viral load felt "free" to not use condoms and were relieved from transmitting HIV. However, this understanding of the U=U message does not protect them to other risks not addressed in this message, i.e., the fact that participants remain exposed to risks of STI and unintended pregnancy in the absence of contraceptive methods. To our knowledge, this matter has never been reported in the literature.

Female adolescents reported low use of contraceptive methods such as hormonal contraceptives. This was partly related to negative beliefs regarding the perceived "risk of sterility" that is associated with hormonal contraceptive use that have been commonly described in the literature [37]. Social norms about fertility and having children contribute to the proliferation of these misconceptions about modern methods of contraception [24, 38]. Our results were similar to those from qualitative studies reporting low knowledge about contraceptives among adolescent in ASS. [39, 40]. These beliefs about contraceptives, which are transmitted by peers and by health professionals, have detrimental consequences for the SRH of ALHIV, as shown in a Kenyan study [2]. A lack of adequate information regarding contraception led participants to adopt ineffective methods to prevent or abort a pregnancy. In our study, most female adolescents reported preferring using an emergency contraceptive pill. Women of reproductive age in sub-Saharan Africa are generally well informed about the availability of emergency contraception [41]. Studies carried out in Ghana [42] and Nigeria [43] have shown similar results, with regular use of emergency contraceptive pills to compensate for non-use of condoms, hormonal pills, or injections. To provide adolescents with accurate information from a trusted source about SRH, especially about

contraceptive use is essential. This could be achieved by reinforcing training of healthcare professionals and peer-educators on these topics and by creating a safe environment for these adolescents to discuss these issues.

Poor knowledge about modern contraceptive methods and misconceptions held by popular opinion limits the use of hormonal contraceptives and has led to the emergence of non-conventional, ineffective methods for contraceptive purposes, with participants reporting the use of traditional medicine (plants) or a mix of products (coffee with Coke, painkillers with energy drinks). These practices have rarely been described in the scientific literature. A study in Nigeria [39] showed that traditional and non-conventional, ineffective methods are sometimes more widely used than modern methods.

Experience with peer-educators shows that they could play a positive role in leading discussions related to SRH with adolescents and impulse positive changes [44]. A systematic review of interventions designed to reduce risky sexual practices among ALHIV in sub-Saharan Africa [12] showed that the majority of efficacious initiatives included community activities and peer education. The most significant results were an increase in the use of contraception and in adolescents' knowledge of sexuality [45]. It is therefore necessary to strengthen the training of peer-educators and emphasize their role in HIV care programmes in Côte d'Ivoire to discuss SRH issues with ALHIV.

Finally, an alarming number of adolescent females reported non-consentual sexual initation, as well as experiences of sexual violence. A literature review conducted in 2020 estimated that the pooled prevalence of sexual violence was 18% among women aged 15–49 years in sub-Saharan Africa [46]. In Zambia, among adolescents who have already had sex, 31% of boys and 63% of girls reported that their first sexual encounter was forced [47]. This Zambian study also reported on ALHIV who had been raped by family members and pressured not to disclose their abuse. The idea that it is not necessary to report sexual violence is part of the current social norms in Côte d'Ivoire [24]. Few studies have been carried out specifically on girls and young women living with HIV in sub-Saharan Africa, but the results among adults highlight their high vulnerability to sexual violence [48, 49]. The issue of gender-based violence and interpersonal violence is therefore a major issue among female adolescents living in sub-Saharan Africa and remains a priority for the 2030 Sustainable Development Goals [50].

Strengths and limitations

To our knowledge, our study is the first to explore SRH for and with ALHIV in Côte d'Ivoire. Using a qualitative approach allowed us to provide novel results on this topic, emphasising the opinions of adolescents and peer-educators, which could guide the participatory development of future SRH interventions for Ivorian adolescents and young adults. One of the study limitations was that participants were selected deliberately by healthcare professionals using different recruitment and information methods between each participating centre, giving priority to adolescents predisposed to discuss sexuality with the interviewers. The results could have been different if the selection had been made by the interviewers on the basis of observation at educational talks. Furthermore, participants' responses could have been subject to social desirability bias, as sexuality was a taboo and personal subject in this study context that could have led to the perception of judgments. The presence of two culturally different interviewers may also have influenced the participants' responses, although cultural adaptation methods were used.

Conclusions

Our study highlighted numerous SRH challenges and the needs of ALHIV in Côte d'Ivoire, especially the lack of reliable information and support regarding SRH, as well as the limited access to efficient preventive SRH methods. The study revealed that limited and unreliable access to SRH information and services impacts sexuality and contraception knowledge and practices. Public health strategies to promote SRH education among adolescents need to be urgently developed to improve adolescents' knowledge and sexual empowerment, especially among women, which could lead to a reduction in risky sexual practices and unintended pregnancies. Community-based, participatory research programs encouraging adolescents to use, ensuring access to and addressing cultural barriers and misconceptions of modern contraceptive methods, as well as of inefficient popular methods used to prevent or abort pregnancy, are needed to overcome these challenges.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12978-024-01919-6.

Additional file1 (PDF 301 KB)

Additional file2 (DOCX 14 KB)

Additional file3 (DOCX 19 KB)

Additional file4 (DOCX 19 KB)

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Author contributions

CT, JD, JJ, DLD, and VL conceived the study. CT and JD conducted the qualitative interviews and analyses under the supervision of JJ. CT wrote the first draft of the manuscript, which was subsequently reviewed, edited and approved by all the authors. DLD and VL are the co-principal investigators of the OPTIMISE project. VL was involved in the pediatric IeDEA cohort coordination and fundraising. MSN, KK, FE and CY are clinicians and were in charge of conducting the OPTIMISE-AO project in each clinic involved in the study. CM, PN, BB are psychologists involved in the OPTIMISE-AO project; they especially provided their expertise and support for the development and conduct of the qualitative interviews. PM and EK contributed to the development of the OPTIMISE-AO project and supervised the study activities in Abidjan. MHD and MHM have extensive knowledge on SRH and adolescents' health and were consulted for the analysis and interpretation of the results. All authors have read and approved the manuscript.

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Availability of data and materials

No datasets were generated or analysed during the current study. The datasets generated and/or analysed during the current study are not publicly available due as data ownership remains with the participating sites. Reasonable request for access to data can be addressed to the corresponding author.

Declarations

Competing interests

The authors declare no competing interests.

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